

Amendments to the Specification:

~~HIGH HEAT TRANSFER FUSER ROLLER~~

IMPROVED FUSER ROLLER

FIELD OF THE INVENTION

This invention relates to fusing stations in electrostatographic reproduction apparatus, and more particularly to an improved fusing roller with high heat transfer efficiency.

Background of the Invention

In electrostatographic reproduction apparatus, an electrostatic latent image is formed on a primary image-forming member such as a photoconductive surface and is developed with thermoplastic toner particles to form a toner image. The toner image is thereafter transferred to a receiver member, e.g., a sheet of paper or plastic, and the toner image is subsequently fused or fixed to the receiver member in a fusing station using heat and pressure. The fusing station includes a fuser member which can be a roller, belt, or any surface having a suitable shape for fixing thermoplastic toner particles to the receiver member.

In fusing using a roller fuser member, the toned receiver member is commonly passed between a pair of engaged rollers that produce an area of pressure contact known as a fusing nip. In order to form the fusing nip, at least one of the rollers typically includes a compliant or conformable layer. Heat is transferred from at least one of the rollers to the toner in the fusing nip, causing the toner to partially melt and attach to the receiver member. In the case where the fuser member is a deformable heated roller, a resilient elastomeric layer is typically bonded to the core of the roller, with the roller having a smooth outer surface. Where the fuser member is in the form of a belt, e.g., a flexible endless belt that passes around the heated roller, the belt typically has a smooth outer surface which may also be hardened.

Simplex fusing stations attach toner to only one side of the receiver member at a time. In this type of fusing station, the engaged roller that contacts the unfused toner is commonly known as the fuser roller and is a heated roller. The roller that contacts the other side of the receiver member is known as the pressure roller and is usually unheated. Either or both rollers can have a